

Appl. No. 10/627,539  
Amdt. dated Sept. 15, 2005  
Reply to Office Action of May 18, 2005

## **REMARKS / ARGUMENTS**

Pursuant to 37 C.F.R. § 1.111, reconsideration of the present application in view of the following remarks is respectfully requested. This response is timely in view of the accompanying Request for Extension of Time, which extends the period for response to September 18, 2005.

### **In the Claims**

Claims 1-26 are presented for the Examiner's consideration.

Claims 1, 12 and 19 have been amended to more clearly claim the present invention. The amendments point out that the heating element heats an inner portion of the thermally conductive, heat sealing disk such that the heat is thermally conducted radially through the disk, from the inner portion of the disk toward the outer portion of the disk and toward an outer peripheral surface of the disk. Support for such amendments can be found in the specification at page 7, lines 3 – 7 and page 8, lines 27 – 32. No new matter has been added.

### **Regarding Examiner's rejections**

#### **1. Rejection for anticipation by Kallner**

By way of the Office Action mailed May 18, 2005, claims 1 – 3, 8, 10, 12 – 14, 17, 19 – 20, and 23 – 25 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,791,125 to Kallner (hereinafter referred to as Kallner). This rejection is respectfully traversed to the extent that it may apply to the present claims.

Kallner teaches a rotary heat sealer useable for thermally sealing overlapping film layers wrapped about a load (column 3, lines 21-23). The rotary heat sealer includes heat sealing disks rotatably supported on a rotatable shaft (column 3, lines 25-27). The heat sealing disks are resiliently coupled to the rotatable shaft so that the heat sealing disks are movable transversely relative to the axial dimension of the rotatable shaft (column 3, lines 33-37) to assure complete and permanent welding of overlapping films layers about the load (column 6, lines 19-26).

The heat sealing disks (100) of Kallner are support rings (130) with heating elements (120) that are disposed on the outer peripheral surface (136) about the circumference of the support ring (130) (see FIG. 3 and column 3, lines 40 – 65 of Kallner). As can be seen in FIG. 3, and as described in column 4, lines 18 – 40, the support rings are substantially hollow to

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accommodate the spring members (140) that allow the support ring to be resiliently mounted to the rotatable shaft 20 in such a way that allows the heat sealing disk / support ring to move transversely relative to the shaft axis. In use, the heating elements (120) located on the outermost periphery of the support ring (130) are heated by an electrical current and are put in direct contact with the film layers to be sealed about a wrapped load (column 3, line 28 – column 4, line 17; FIG. 1; and FIG. 3 of Kallner).

However, Kallner does not teach the heating element heating an inner portion of the heat sealing disk or thermal conduction radially from the inner portion of the disk toward an outer portion and toward an outer peripheral surface.

In contrast to Kallner, the present invention uses a heat sealing disk having (progressing outwardly on a radius from the center of the disk) an inner portion, an outer portion and an outer peripheral surface (see FIGS. 2, 3 & 4). A heat sealing disk of the present invention is thermally conductive (page 5, line 34 – page 6, line 1). In use, a heating element is heated with an electrical current and the heat of the heating element is transmitted to the inner portion of the heat sealing disk. The heat is then conducted radially from the inner portion of the heat sealing disk into the outer portion of the disk and finally into the outer peripheral surface of the disk. The heated outer peripheral surface comes in contact with the material roll when the heat sealing disk engages the material roll to weld the trailing sheet tail of the roll material to the underlying layer of sheet material on the roll (page 7, lines 3 – 12; page 8, lines 27 – 32).

By heating the inner portion of the disk and relying on heat conduction to transmit that heat to the outer portion of the disk and the outer peripheral surface, the entire disk is heated and stores heat energy along the disk radius. Such heating of the entire heat sealing disk allows the disk to store sufficient heat energy to sustain continuous heat sealing of the trailing tails of material rolls in a continuous production process at continuous production speeds (page 8, lines 27 – 32).

Kallner uses a heating strip wrapped about the outer circumference of the heat sealing disk. As such, the heating element of Kallner does heat an inner portion of the heat sealing disk so as to cause thermal conduction through the disk toward an outer portion of the disk and toward an outer periphery. Therefore, as Kallner fails to disclose each and every element of the independent claims 1, 12 and 19, Applicant respectfully submits that the rejection of claims 1 – 3, 8, 10, 12 – 14, 17, 19 – 20, and 23 – 25 under 35 U.S.C. § 102(b) is improper and should be withdrawn.

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With respect to rejection of claim 25, the Office Action makes reference to Weiss et al. as showing conveyors for moving rolls past the sealing device. Such conveyors are not discussed in Kallner. Therefore, Applicant believes that the Office Action lacks a proper rejection with respect to claim 25. However, as Kallner fails to disclose each and every element of the independent claim 19, on which claim 25 depends, Applicant respectfully submits that any rejection of claims 25 under 35 U.S.C. § 102(b) by Kallner would similarly be improper.

Additionally, the Office Action suggests that if the load of Kallner were replaced with a roll and wrapped with overlapping film layers for protection during shipping or storage, the apparatus of Kallner would heat seal the outer surface of the trailing sheet tail on the roll to weld it to the underlying layer of sheet material. This logic is used in the Office Action to support the conclusion that the apparatus of Kallner could be used in the same executions as the present invention and thus the materials roll as acted upon in the present invention are not given patentable weight. The Applicants respectfully disagree with both the logic and conclusion of such statements.

First, the argument proposed by the Office Action is flawed. The device of Kallner is used to seal the loose end of film wrapped about a load to the film itself (column 2, lines 17 – 20). It is plausible that such a load may in fact be a roll of material, such as contemplated by the present invention, and it is also plausible that film wrapped about such a roll could be sealed to wraps of such film using the device of Kallner. However, it does not logically follow that the capability of sealing film wrapped about a load could plausibly be equated with the capability to seal together materials that constitute the load itself.

Secondly, one skilled in the art would understand that the types of uses contemplated by the present invention and Kallner are quite different in their demands. As is well-known, the types of films that are used to wrap loads as contemplated by Kallner are lower thickness films to ensure pliability about the load and minimize costs. One skilled in the art would see that such films would be much easier to seal to itself than the roll materials and continuous process execution that are contemplated by the present invention (see page 7, lines 3 – 25).

Finally, one skilled in the art would understand that the heat sealing disk of Kallner would not be capable of storing the amount of heat energy as contemplated by the present invention to weld the tail on a roll of sheet material to the underlying layer of sheet material on the roll. As

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discussed in the background of the present invention, the use of hollow disks and heating elements on the circumferences of the disks in the device of Kallner means that it will have limited ability to store heat. This limited ability to store heat will restrict the use of the Kallner device to slow-speed or discrete, single-use applications. In contrast, the device of the present invention allows for greater heat storage for use in a continuous process and on more robust (i.e., thicker, heavier, stronger, etc.) materials than contemplated by Kallner.

## **2. Rejection for obviousness by Kallner**

By way of the Office Action mailed May 18, 2005, claims 9, 11, 18, and 26 stand rejected under 35 U.S.C. § 103 as allegedly being obvious to one of ordinary skill in the art at the time the invention was made and thus unpatentable over Kallner. This rejection is respectfully **traversed** to the extent that it may apply to the present claims.

As described above, Kallner does not disclose all the limitations of independent claims 1, 12, or 19, upon which claims 9, 11, 18, and 26 depend. Because Kallner does not teach or suggest all of the limitations of independent claims 1, 12 or 19, a *prima facie* case obviousness has not been met with regard to claims depending therefrom. Accordingly, the obviousness rejection of claims 9, 11, 18, and 26 under 35 U.S.C. §103(a) is not warranted and should be withdrawn.

## **3. Rejection for obviousness by Kallner in view of Bradshaw et al.**

By way of the Office Action mailed May 18, 2005, claims 4, 5, and 21 stand rejected under 35 U.S.C. § 103 as allegedly being obvious to one of ordinary skill in the art at the time the invention was made and thus unpatentable over Kallner in view of U.S. Patent No. 6,358,356 to Bradshaw et al. (hereinafter referred to as Bradshaw). This rejection is respectfully **traversed** to the extent that it may apply to the present claims.

As described above, Kallner does not disclose all the limitations of independent claims 1 or 19, upon which claims 4, 5, and 21 depend. Bradshaw does not remedy the deficiencies of Kallner as Bradshaw also fails to disclose a heating element that heats an inner portion of a heat sealing disk. Because Kallner does not teach or suggest all of the limitations of

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independent claims 1 or 19, a *prima facie* case obviousness has not been met with regard to claims depending therefrom.

Additionally, there is a lack of motivation to combine Kallner with Bradshaw. Bradshaw teaches a method and an apparatus for applying a tape with a thermally activatable or pressure sensitive adhesive impregnated therein to the surface of a substrate such as wood veneer or decorative wood surfacing material (column 2, lines 27-32). The method and apparatus are directed toward solving the problem of generating unwanted globs of glue on the substrate and the surrounding area (column 2, lines 65-67). Kallner does not teach the use or application of adhesive impregnated tapes. Therefore, one of ordinary skill in the art working with the subject matter taught by Kallner would not reasonably be expected or motivated to look to references directed to the problems associated with the application of adhesive impregnated tapes.

It is noted that the Office Action suggests that the heated wheel of Bradshaw is a functionally equivalent alternate expedient to the heat sealing disk of Kallner. Applicants respectfully disagree. The function of the heated wheel of Bradshaw is to apply adhesive impregnated tape to a substrate, while the function of the heat sealing disk of Kallner is to heat seal plastic sheets together. Because of the difference in the functions, one of ordinary skill in the art would not be motivated to combine these references. Because one of ordinary skill in the art would lack the motivation to combine the cited references, Applicants respectfully request that a *prima facie* case for obviousness has not been established.

At least for the reasons given above, the Applicants respectfully submit that the *prima facie* case of obviousness has not been established. Accordingly, the obviousness rejection of claims 4, 5, and 21 under 35 U.S.C. §103(a) is not warranted and should be withdrawn.

#### **4. Rejection for obviousness by Kallner in view of Herrington**

By way of the Office Action mailed May 18, 2005, claims 6 - 7, 15 - 16, and 22 stand rejected under 35 U.S.C. § 103 as allegedly being obvious to one of ordinary skill in the art at the time the invention was made and thus unpatentable over Kallner in view of U.S. Patent No. 4,717,372 to Herrington (hereinafter referred to as Herrington). This rejection is respectfully **traversed** to the extent that it may apply to the present claims.

As described above, Kallner does not disclose all the limitations of independent claims 1, 12, and 19, upon which claims 6 - 7, 15 - 16, and 22 depend. Herrington does not remedy the

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deficiencies of Kallner as Herrington also fails to disclose a heating element that heats an inner portion of a heat sealing disk. Because Kallner does not teach or suggest all of the limitations of independent claims 1, 12, or 19, a *prima facie* case obviousness has not been met with regard to claims depending therefrom.

Additionally, there is a lack of motivation to combine Kallner with Herrington. Herrington teaches an apparatus for producing an intermittent heat seal in a moving web of thermoplastic film (column 2, lines 41-44). The intermittent heat seal is provided by movement of the web between a heated support means and a plurality of wheels having heat conducting surfaces spaced around the periphery of the wheels (column 2, lines 44-61). Conversely, Kallner teaches a rotary heat sealer with heat sealing disks that are movable transversely to compensate for variation in the shape of the load for the specific purpose of assuring **complete and permanent welding** of overlapping films layers (column 6, lines 19-26).

One of ordinary skill in the art seeking a more complete and permanent heat seal (Kallner) would not be motivated to incorporate the teachings from a reference that provides intermittent heat seals (Herrington). The references would **teach away** from each other. Because one of ordinary skill in the art would lack the motivation to combine the cited references, Applicants respectfully request that a *prima facie* case for obviousness has not been established.

At least for the reasons given above, the Applicants respectfully submit that the *prima facie* case of obviousness has not been established. Accordingly, the obviousness rejection of claims 6 - 7, 15 - 16, and 22 under 35 U.S.C. §103(a) is not warranted and should be withdrawn.

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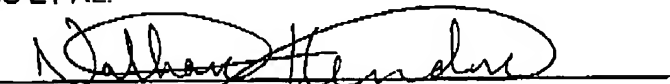
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The undersigned may be reached at: 770-587-8626.

Respectfully submitted,

DAVIS ET AL.

By:

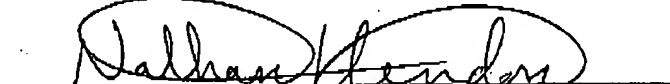


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#### CERTIFICATE OF FACSIMILE TRANSMISSION

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